

# PHENIX WEEKLY PLANNING



6/13/2013  
Don Lynch

## This Week

- Run 13 ends, shutdown 2013 begins
- FVTX post run tests
- mRPC Test Lab (Formerly RPC Factory): operations support
- Purge flammable gas
- Open shield wall, begin disassembly
- Begin de-cabling VTX/FVTX
- Prep EC for move to AH
- Remove dumb waiter and ladder from EC
- VTX strip pixel stave re-design prototype evaluation
- Continue sPHENIX support
  - HCal prototype
  - EMCal prototype design continuing
- MPC-Ex design for run 14
- Future IR evolution modeling

## Next Week

- Shield wall disassembly
- Take down MuID collars to IR staging area
- move EC to AH
- Move MuID collars to AH
- Move plates and 20 ton cart to IR
- Move manlift to IR
- Continue de-cabling of VTX/FVTX
- VTX strip pixel stave re-design prototype performance testing and evaluation
- Continue sPHENIX support
  - HCal prototype
  - EMCal prototype design continuing
- MPC-Ex design for run 14
- Future IR evolution modeling

## Major Projects This Summer:

- VTX repairs/upgrades/general maintenance (Mike L.)
- DC East Window Replacement (Kenny J.)
- MPC-Ex Initial (partial) Installation (Jim L.)
- mRPC Tests in mRPC Test Lab (formerly RPC Factory) (Frank T.)
- sPHENIX Prototypes assembly & tests (All)
- MuTr troubleshooting and Repairs (Chris P.)
- Window Washer Winch upgrade (Jim L.)

### Other Mechanical (TBD)

### Other Electrical Projects

- HVAC Controls Upgrade (Frank T.)
- Complete Window Washer Controls Upgrade (Frank T.)

### Other Electronics Projects

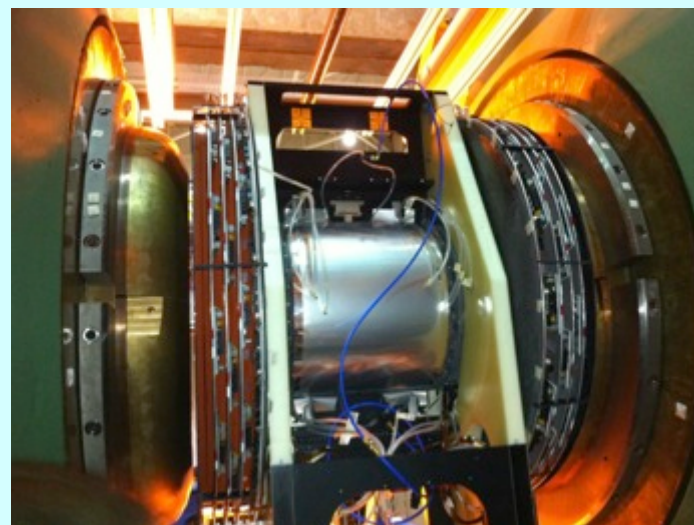
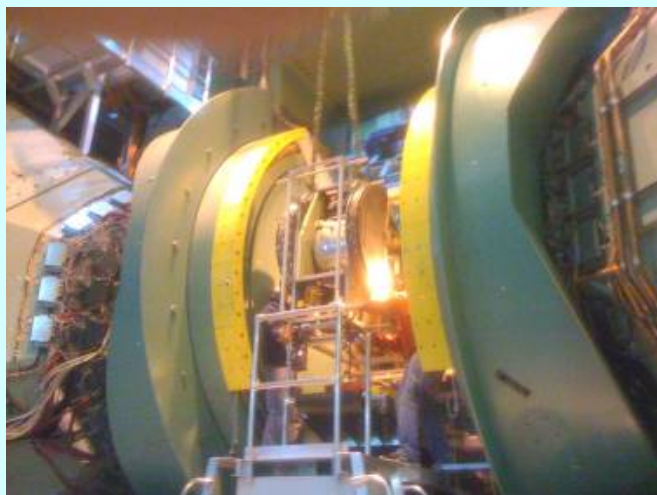
- Additional upgrading of ADAM system to MODBUS (Sal P.)
- Electronics research in support of sPHENIX and RATCAP (Sal P.)
- Lecroy HV communications upgrade (Sal P.)

### Other Gas System Projects (TBD)

- RPC Gas Recirc. Upgrade (John T.)
- Drawing and Config. Control Improvements (SULI Student)

### Other Infrastructure Projects (TBD)

TECHNICAL SUPPORT WORK



## VTX & FVTX Summary of Tasks

VTX/FVTX Disassembly - After Start of shutdown tasks are completed (EC out to AH), coolant and N<sub>2</sub> lines, LV, signal and HV cables and fibers will be carefully removed and coolant drained. East and west detector halves will then be de-mounted and transported to Chemistry bldg for maintenance and overhaul.

At Chemistry lab - VTX, bigwheels and FVTX will be disassembled and all 4 FVTX stations will be transported to the FVTX PHYSICS Lab.

At PHYSICS FVTX lab -FVTX stations will be tested, faults will be isolated, repaired and re-tested.

Concurrently at Chemistry lab -VTX will be disassembled into individual barrels and bigwheels, new /reworked pixel staves will be installed, improved strip-pixel staves will be fabricated assembled and integrated with active components harvested from staves to be replaced, tested and reinstalled in their respective barrels. The VTX will then be re-assembled tested and re-surveyed.

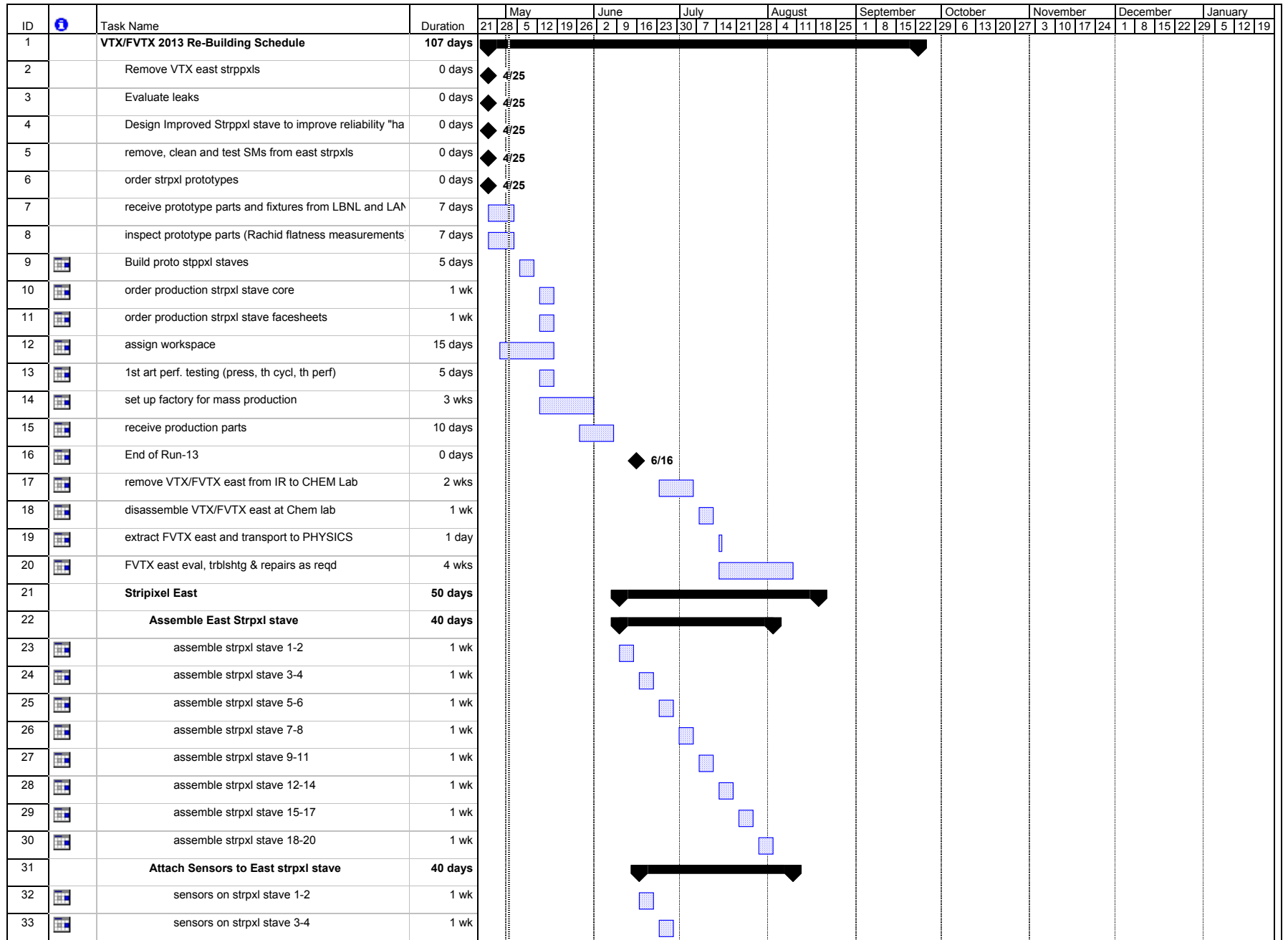
FVTX transported to Chemistry building. FVTX Integrated into VTX. VTX/FVTX assembly surveyed

VTX&FVTX assembly transported to PHENIX and installed on rails.

Coolant and N<sub>2</sub> lines, LV, signal and HV cables and fibers will be carefully reattached.

Full detector re-surveyed in IR





Page 2



Page 3

**P**

[illegible]

## DC East Repairs/Upgrade



Similar to the work done on the DC West last year, the DC East will have its window replaced to repair the wear that years of wire repairs rendering the DC East window a patchwork of tape and have elevated leak rates to the point where replacement of the mylar window is needed.

## DC East Repairs Summary of Tasks

East Carriage move to AH

Design & Construct tent (similar to tent constructed for DC West last year) to prevent foreign material from entering DC East cavity while window is removed.

CAD to provide wide vertical lift to allow DC experts to remove and replace window

Get supplies and materials from Stony Brook for window replacement

Remove and replace window

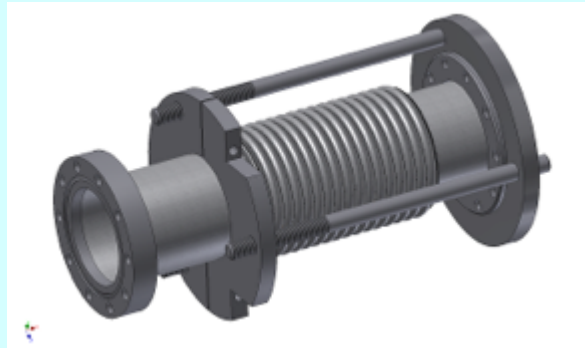
Isolate and repair leak under electronics card

Leak test

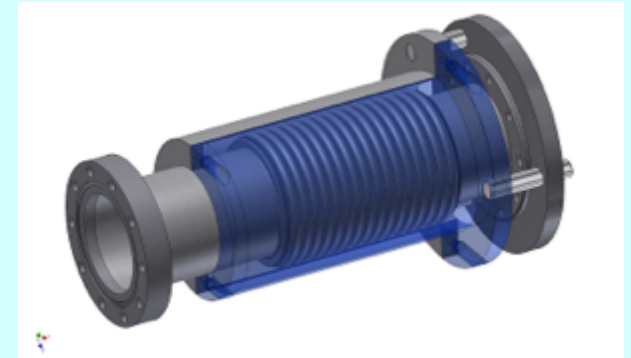
Operational tests

Remove tent and manlift

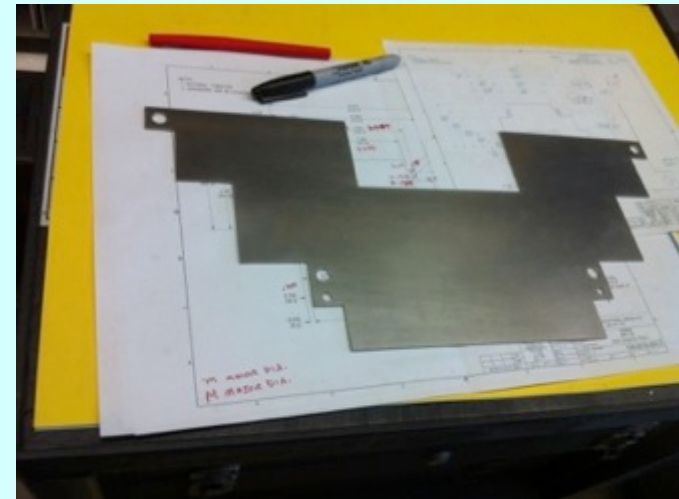
## MPC-Ex Initial (Partial) Installation



Existing vacuum bellows anti-squirm In MPC S Cavity



Design vacuum bellows anti-squirm in MPC S Cavity to accommodate MPC-Ex



1<sup>st</sup> Tungsten Plate received: Inspection OK

## MPC-Ex Initial/Partial Installation Summary of Tasks

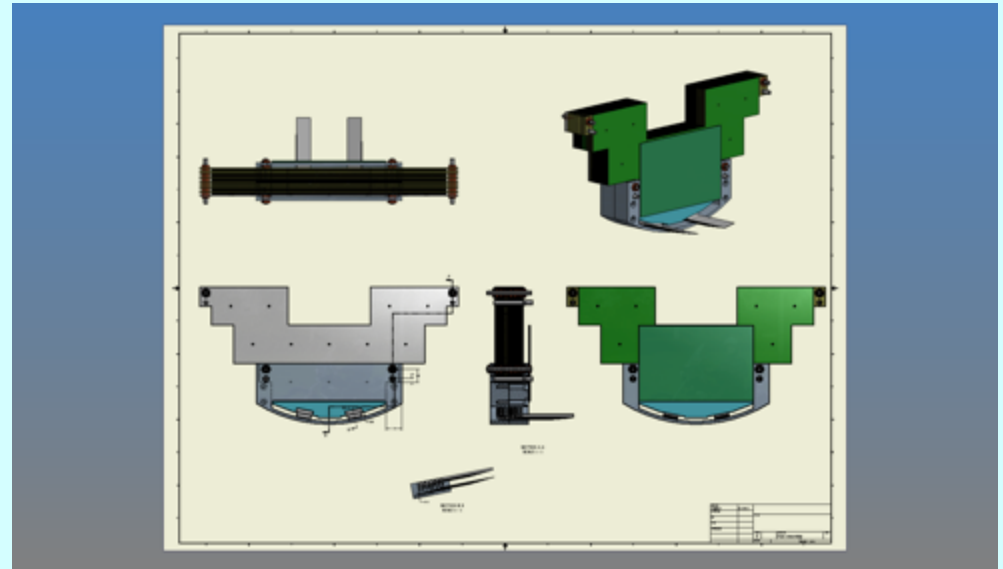
Determine extent of installation for 2013

Design assembly, support and installation fixtures

Assemble and bench test

Install

Performance tests



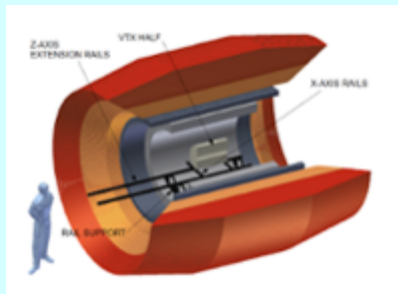


## mRPC Test Lab Project



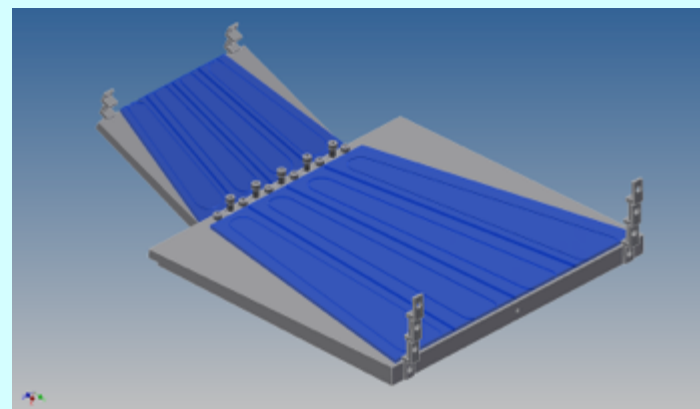
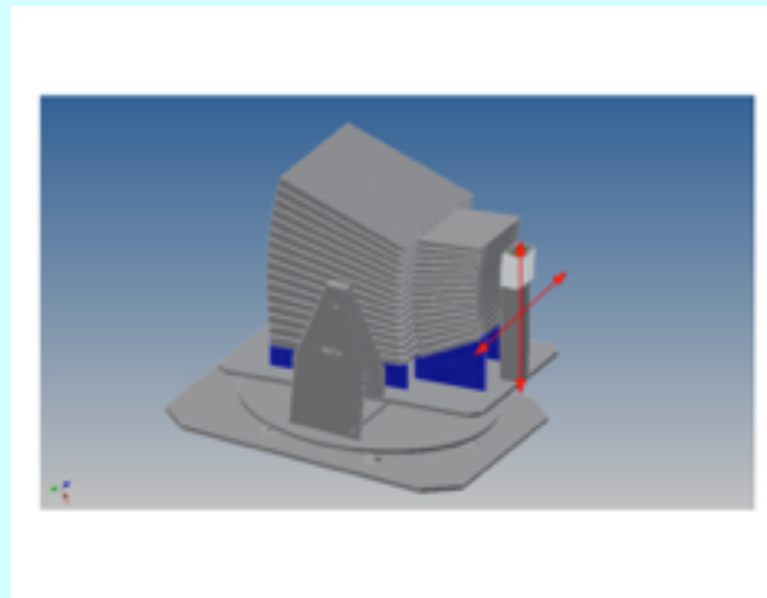
mRPC Test Lab Support  
as required





Hcal prototype component procurement is underway:

Steel and scintillator procurements in progress



## sPHENIX Prototype Assembly and Test Tasks

Design Hcal and EMCal Prototypes and support components and shipping crates

Procure materials and detail parts

Receive and inspect parts

Assemble prototypes

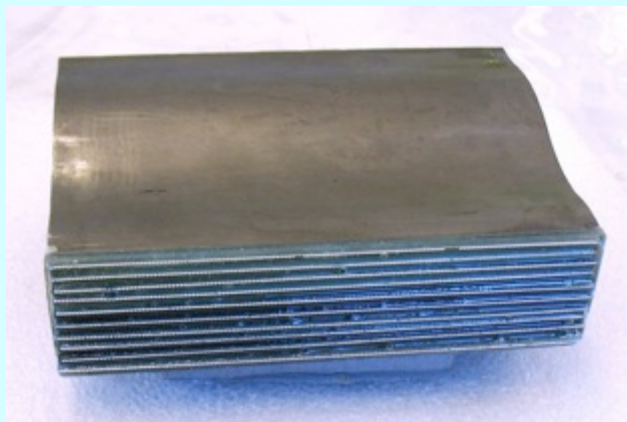
Test assemblies for mechanical fit and function

Package and ship prototypes to FERMI Lab for performance tests

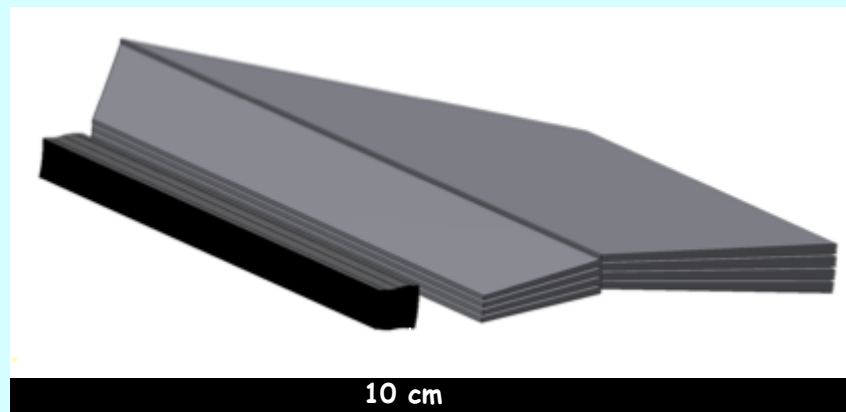
Test and Evaluate at Fermi Lab

# EMCal Prototype

Prototype accordion plates with fibers produced as part of SBIR. EMCal for test beam will be flat tapered plates



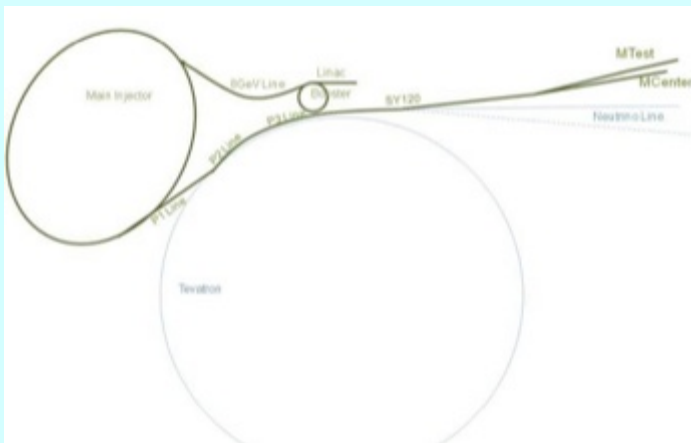
Prototype "Egg Carton" light collection



Proto-type EMCal in front of proto-type HCal

(Photos from Eric slides, from Craig and Sean slides)

## FNAL Complex



Meson West and M-Test Area

Some figures from FNAL M-Test web page  
(From Eric DC Slides)

# The Test Area

Front Portion



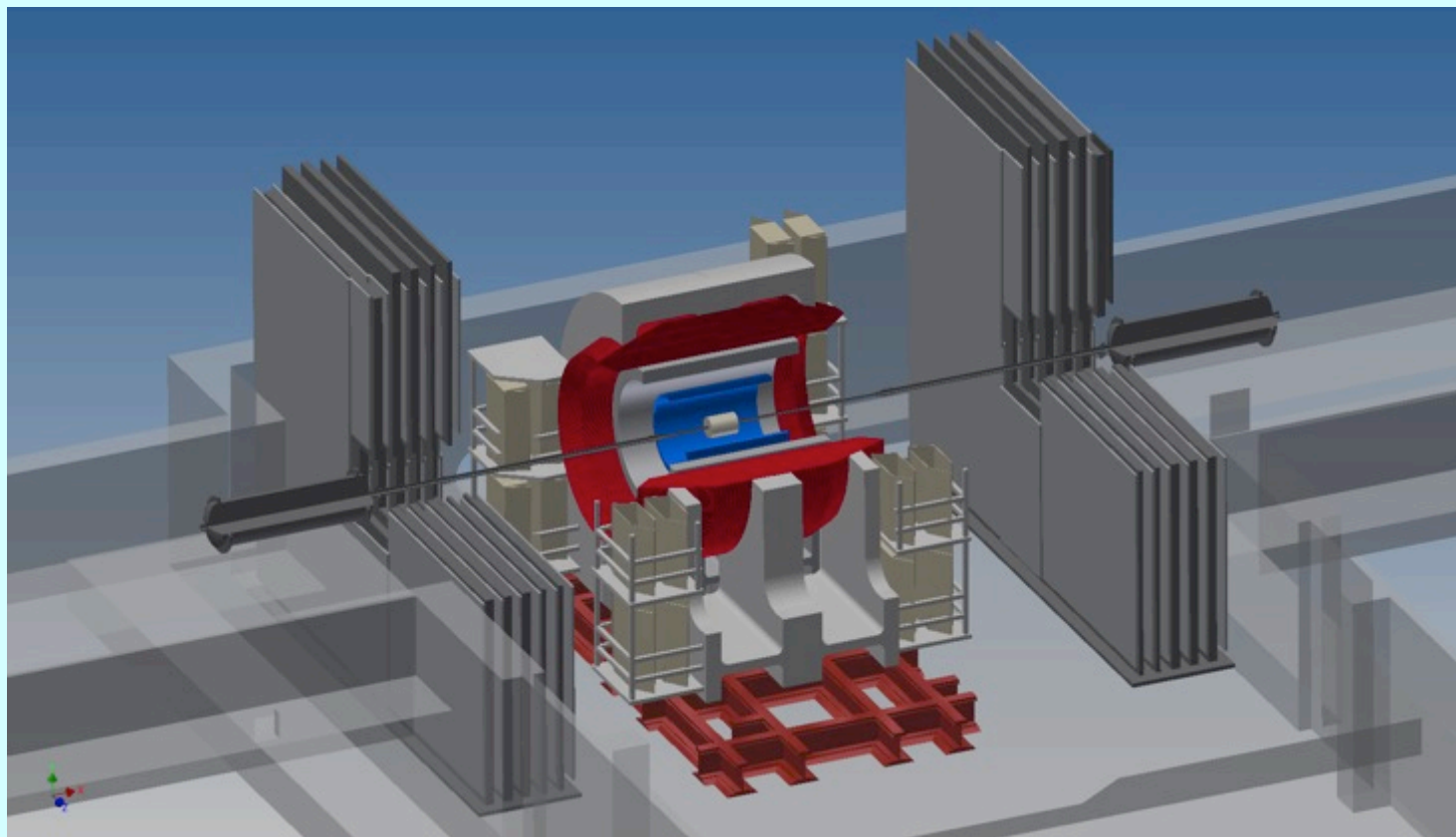
Back Portion

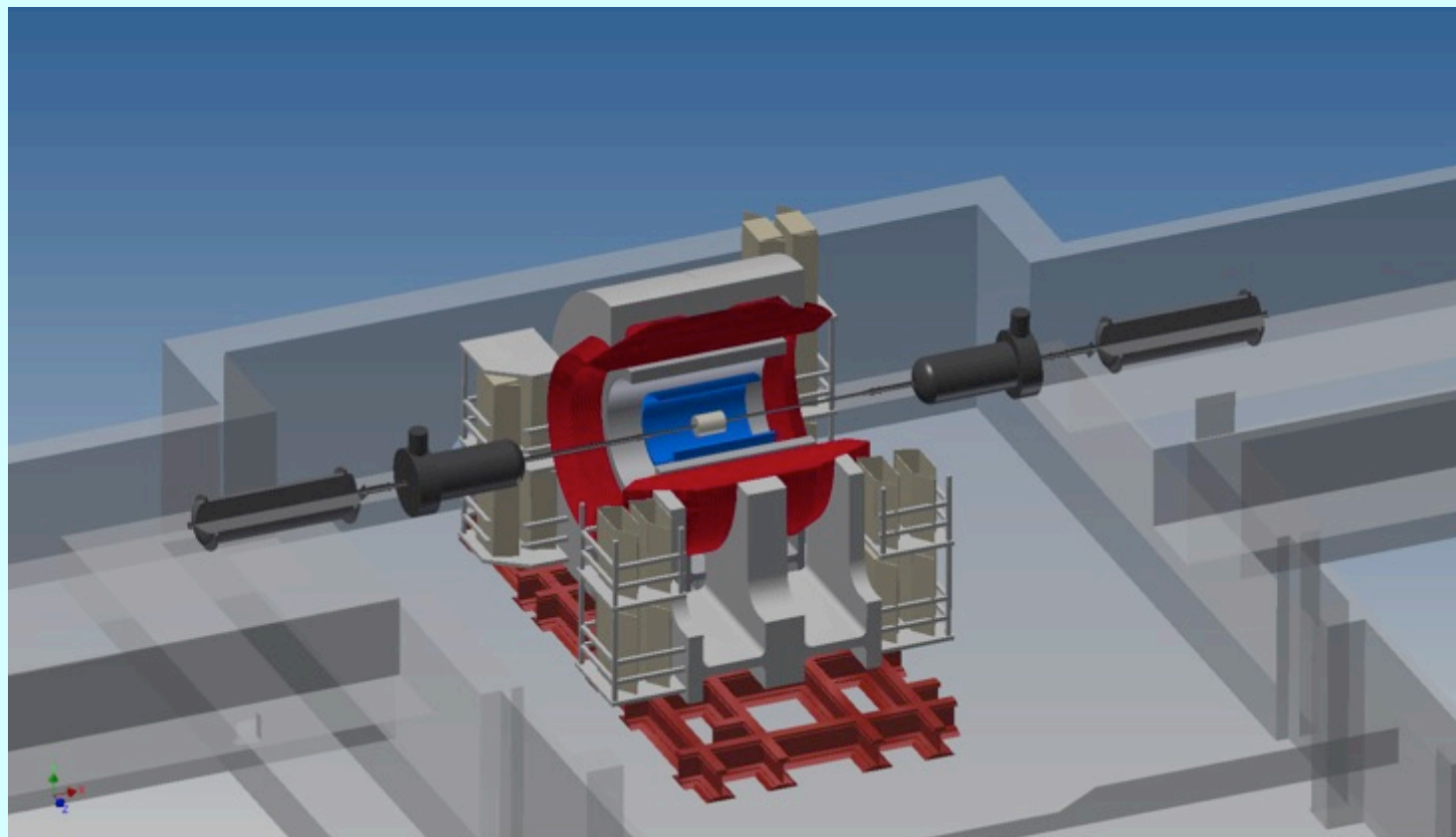


(From Eric DC Slides)



## sPHENIX

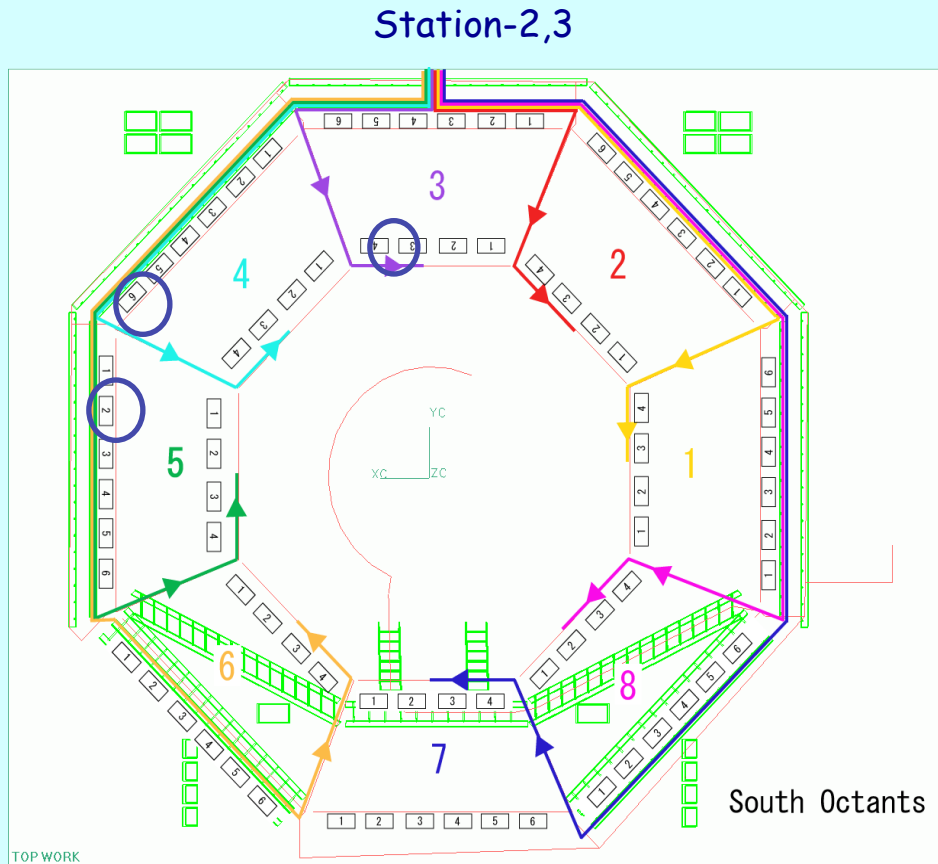




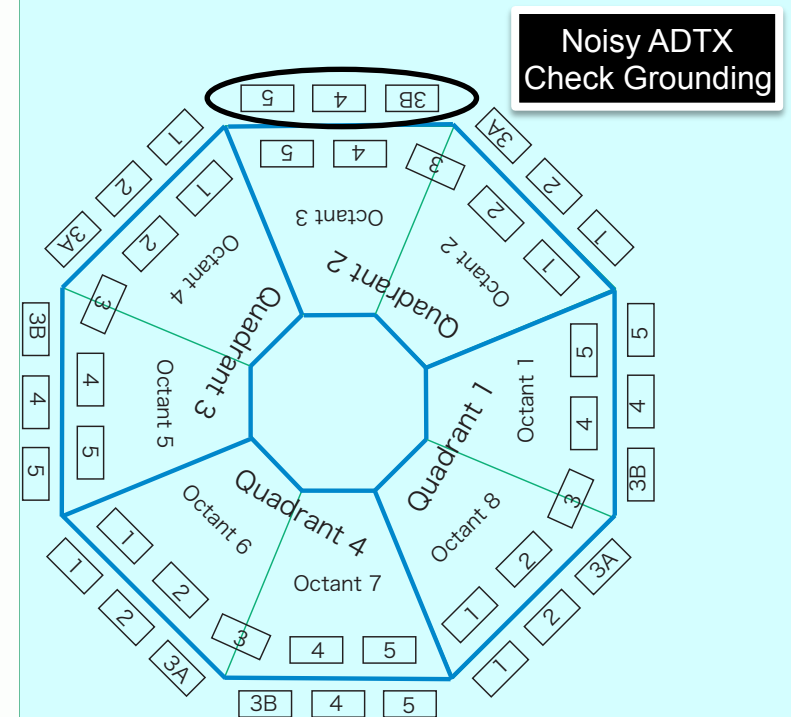


# MuTr South Arm Areas to be accessed

PHENIX SOUTH ARM

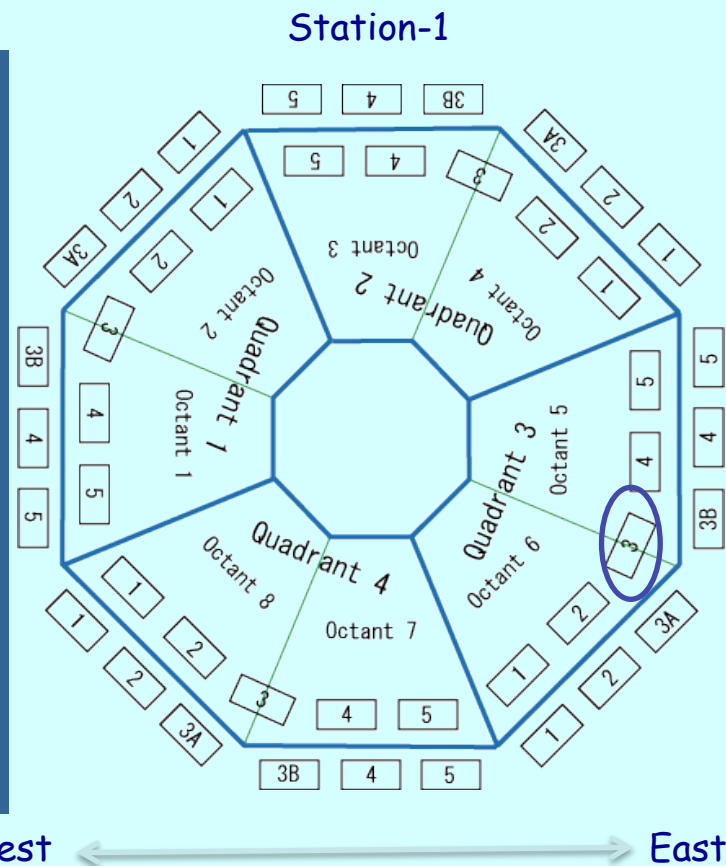
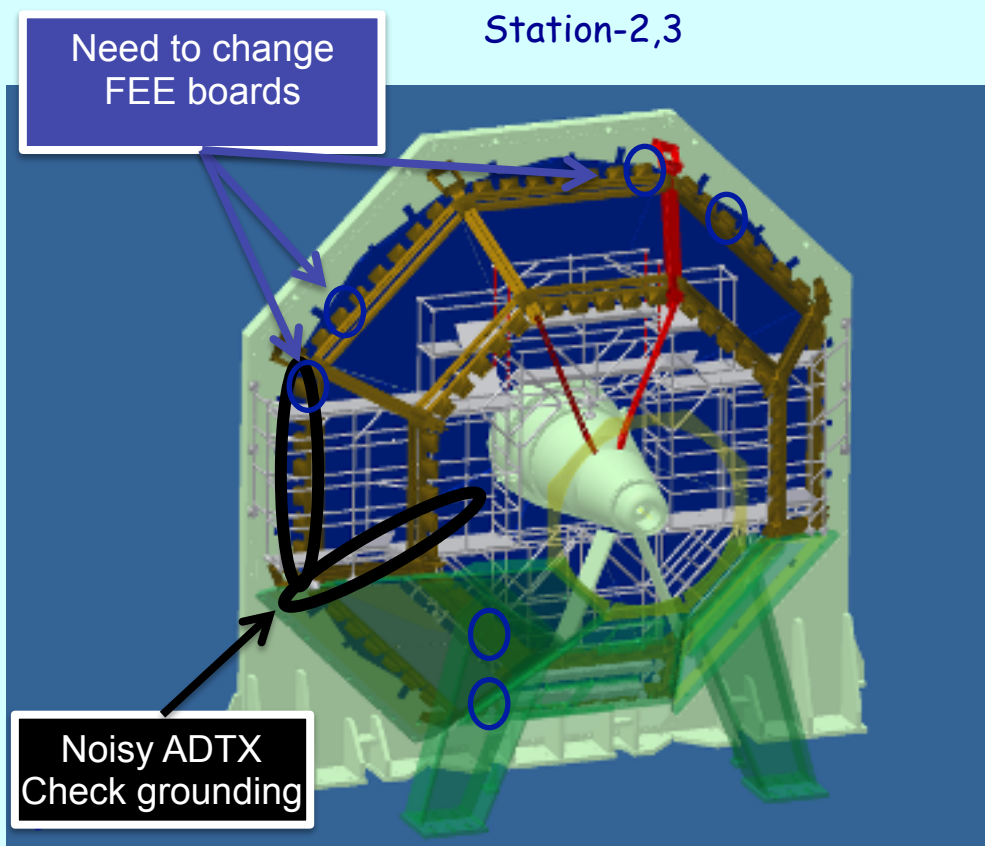


## South Station-1 Chassis

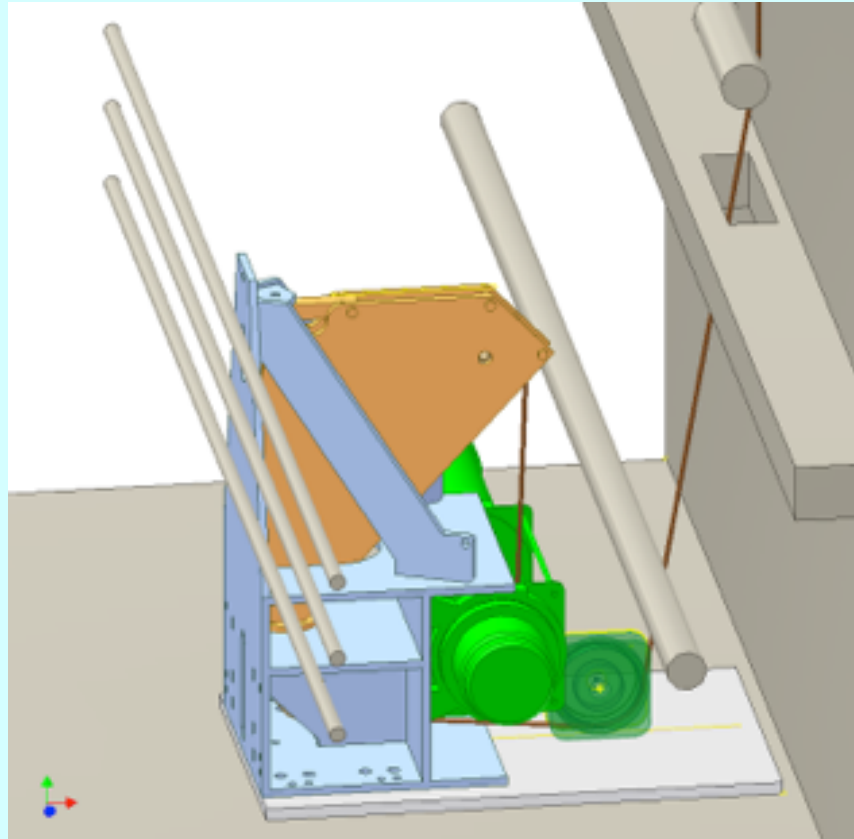


# MuTr North Arm Areas to be accessed

PHENIX NORTH



## Window Washer Winch Upgrade



Winch is on Order

## Window Washer Winch Upgrade Summary of Tasks

Specify and Order Winch & Sheave

Receive and Inspect winch and components

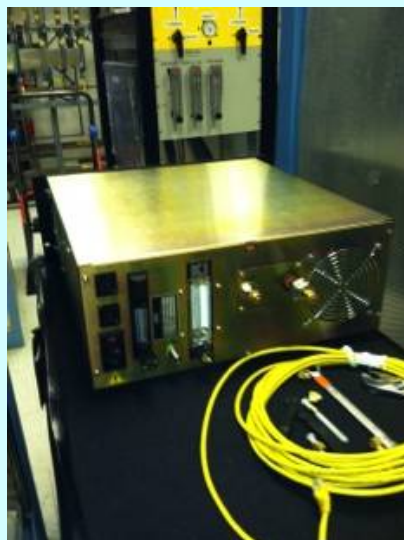
Design and Fabricate Winch & Sheave Base

Install and test Winch, integrate with window washer hardware, controls and power

Final Inspection and approval of window washer upgrade

(Note: remote safety pin insertion and retraction was installed and has been in operation since the start of run 13.)

## New Gas Analyzer Project (RPC recirculation and more)



5/30/2013

|  |                |
|--|----------------|
| Prep for 2013 shutdown   | 2/11-6/11/2013 |
| Design, Fabricate MPC-Ex   |                |
| Define tasks and goals   |                |
| Analysis and design of fixtures, tools and procedures                  |                |
| Fabricate/procure tools and fixtures                                   |                |
| Tests, mockups, prototypes   |                |
| Receive, fabricate, modify, finish installables                        |                |
| Review and approval of parts, tools, fixtures and procedures           |                |
| Assembly and QA tests  |                |
| VTX Strippixel redesign  | Done           |
| VTX Strippixel 1 <sup>st</sup> article stave assembly                  | 5/31/2013      |
| VTX Strippixel 1 <sup>st</sup> article qualification/performance tests | 6/7/2013       |
| VTX strippixel stave production  | 5/20-9/20/2013 |
| VTX Strippixel sensor reclamation                                      | 4/1-8/20/2013  |
| VTX Strippixel ladder assembly & Test                                  | 7/15-9/27/2013 |
| Pixel Ladder repairs   | 4/1-9/20/2013  |
| Run 12 Ends  | 6/11/2013      |
| Shutdown Standard Tasks  | 6/11-7/19/2013 |
| • Open wall, disassemble wall, Remove MuID Collars                     |                |
| • Move EC to AH, etc.  |                |
| VTX/FVTX Post run tests  | 6/11-6/14/2013 |
| Disassemble VTX/FVTX services  | 6/17-7/3/2013  |
| July 4 <sup>th</sup> Holiday   | 7/4-7/2013     |
| Remove VTX/FVTX and transport to Chemistry Lab                         | 7/8/2013       |
| Remove Lampshade MMS, East Vertical                                    | 7/8-12/2013    |
| Assemble, Test and Install MPC-Ex (Partial, location TBD)              | 7/22-10/1/2013 |

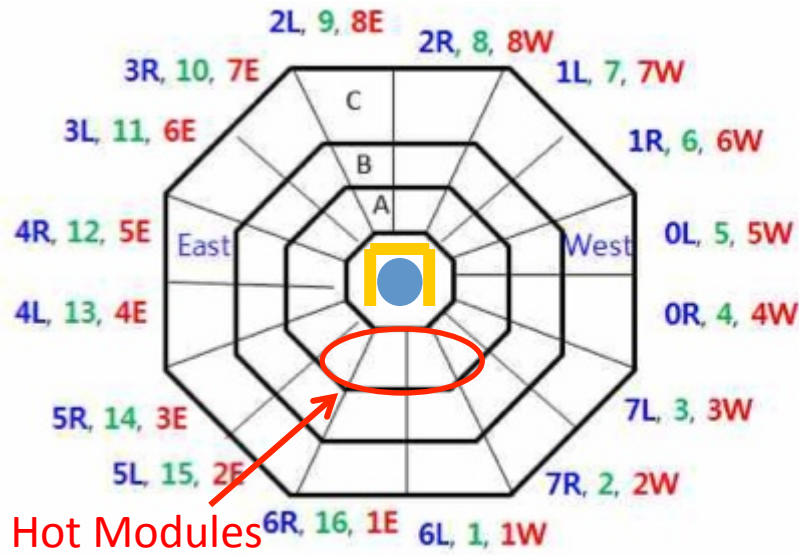


## TECHNICAL SUPPORT WORKS

|  |                  |
|--|------------------|
| MuTR Troubleshooting, maintenance and repairs              | 7/22-9/27/2013   |
| Summer Sunday (8/11) Prep and teardown                     | 7/29-8/6/2013    |
| Summer Sunday (RHIC)                                       | 8/4/2013         |
| DC East Window Upgrade and Related Repairs                 | 8/19-9/27/2013   |
| sPHENIX HCal Prototype Assembly/test                       | 8/19-10/15/2013  |
| Labor Day Holiday  | 9/2/2013         |
| Re-assemble VTX/FVTX halves                                | 8/19-10/14/2013  |
| Test, survey (at Chemistry and IR) and re-install VTX/FVTX | 10/14-10/21/2013 |
| Install & Survey VTX/FVTX in 1008 IR                       | 10/21-11/18/2013 |
| VTX Commissioning  | 11/18-12/9/2013  |
| Other detector maintenance as required                     | As required      |
| Infrastructure maintenance as required                     | As required      |
| TBD prototype tasks  | As required      |
| Pre-run commissioning and prep for run 14                  | 11/1-12/31/2012  |
| Veterans Day, Lab Holiday                                  | 11/11/2013       |
| Prep for EC roll in  | 11/1-11/9/2013   |
| Roll in EC   | 11/10-11/12/2013 |
| Prep IR for run  | 11/1-11/30/2013  |
| Thanksgiving Holidays                                      | 11/28-29/2013    |
| Pink/Blue/White sheets                                     | 12/14-12/31/2013 |
| Christmas Holiday  | 12/24-25/2013    |
| New Year's Day Holiday                                     | 1/1/2014         |
| Start run 14   | 1/2/2014         |



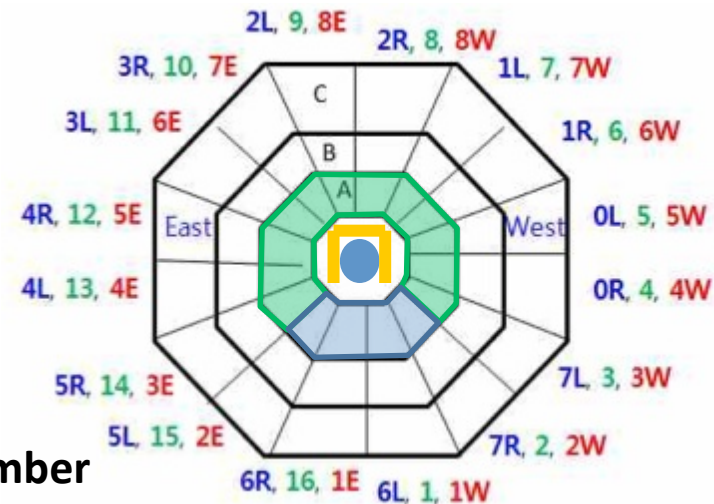
# DX Shielding Improvement for RPC 3



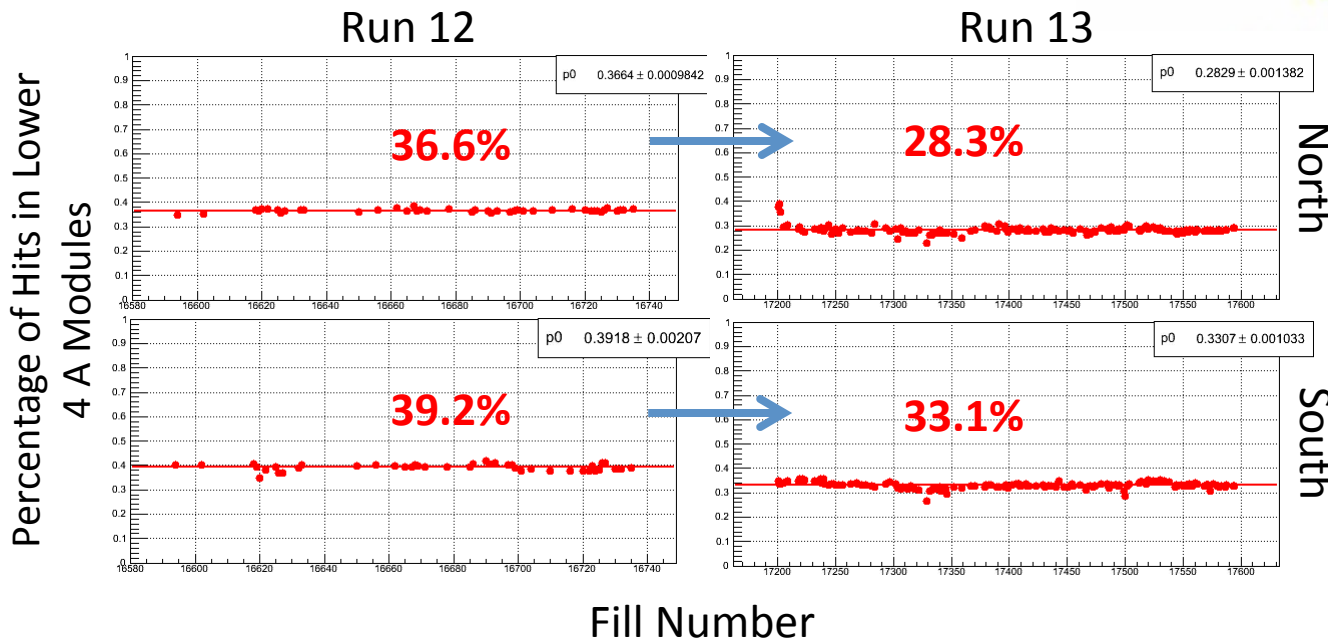
# DX Shielding Improvement for RPC 3

- Evaluating Improvement:**

- Look at number of hits in the lower 4 (most affected) A modules compared to hits in all A modules
- Compare this hit percentage for run 12 (pre-shielding) run 13 (post shielding)



## Percentage of Hits in Lower 4 A Modules vs Fill Number



Assuming an optimal percentage of 25%, consider anything over this “extra” background in the lower A modules

**Effective reduction in “extra” background (At least!):**

- North – 75.0% reduction
- South – 51.7% reduction

From Ray Karol:

## Safety and Security

### NRTL Requirements (from Section 5.2 of C-AD OPM 1.5)

There is a specific OSHA requirement for all electrical equipment to be approved by a "Nationally-Recognized Testing Laboratory" (NRTL). If equipment is not NRTL approved/listed/certified, approval for use at the laboratory may be given by the Authority Having Jurisdiction (AHJ).

Per OSHA: "The NRTL determines that specific equipment and materials ("products") meet consensus-based standards of safety to provide the assurance, required by OSHA, that these products are safe for use in the U.S. workplace."

It is the purchaser's responsibility to ensure that the electrical equipment procured (any device connected to a source of electrical power; i.e. plugs into an outlet), is NRTL approved. (Additionally, any battery operated device operating at 50 volts or greater is to be considered electrical equipment).

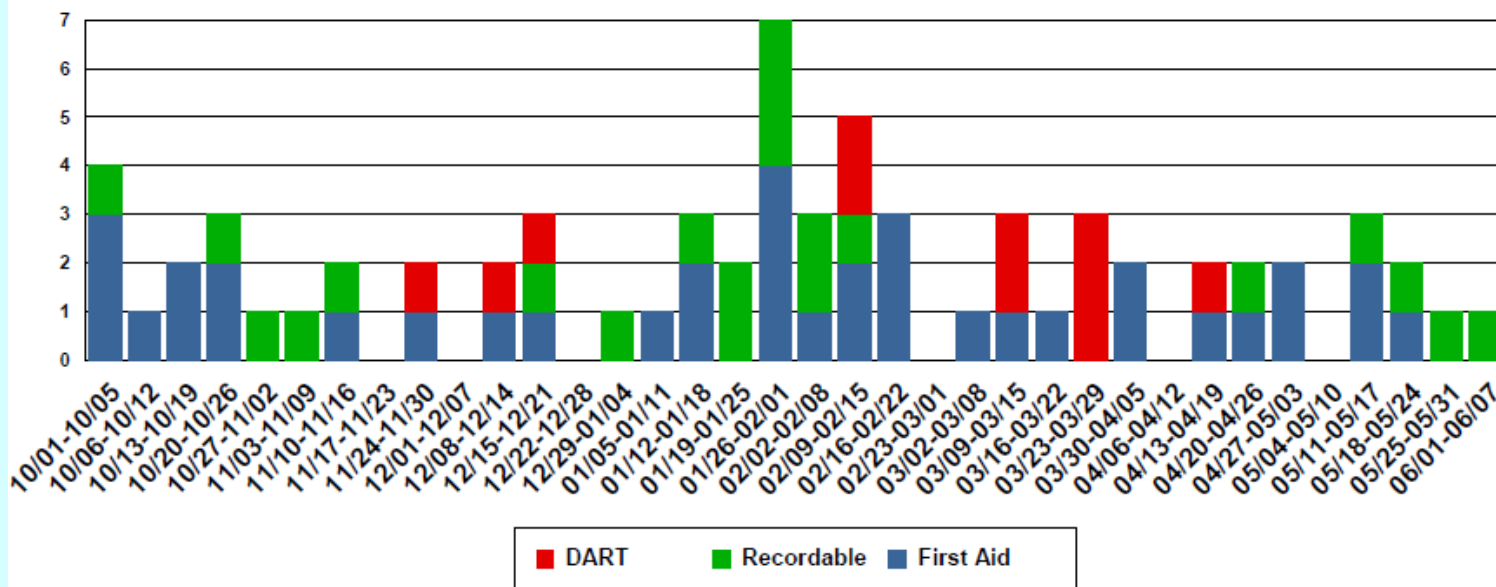
One way to determine if an item is NRTL approved is to look for a specific certification mark (although according to OSHA, this is not a 100% guarantee). The best way is to ask the manufacturer if the item is NRTL approved (although this is not always practical).

Please Note: The European CE mark is NOT an approved NRTL certification mark.

Paul Giannotti is the pHENIX expert in this area.



## Injuries Per Week (FY) As of 6/7/2013



### Injury Status:

FY13 YTD: DART – 11, TRC – 32, First Aid – 37

FY12: DART – 17, TRC – 35, First Aid – 70

FY11: DART – 30, TRC – 44, First Aid – 45

FY13 Injury Listing: <https://intranet.bnl.gov/esh/shsd/seg/Occlnj/BNLInjuries.aspx>

### Recent Injuries

|         |            |  |
|---------|------------|--|
| 6/5/13  | Recordable | A subcontractor injured a finger while using a power tool. At the ER, prescription medication was given, making this a recordable injury. The worker is to see the contractor doctor before returning to work. |
| 5/22/13 | First Aid  | An employee twisted an ankle during a presentation. It was self-treated and the employee eventually reported it to the OMC for examination. No treatment was given.  |
| 5/25/13 | Recordable | An employee fell going up a staircase and cut his right shin on a step. At the ER sutures were applied, making this recordable.  |

| Recent Events |                |   |
|---------------|----------------|---|
| 6/6/13        | Non-Reportable | A worker was walking by Building 801 on Tuesday 6/4 at about 3pm and noticed a downed Controlled Area boundary rope apparently blown over by the wind. The worker attached it temporarily, intending to notify Radiological Control Division later, but forgot. Another worker walked by on Thursday morning 6/6 and noticed the boundary in the wrong location. ( <a href="#">Event Link</a> ) |
| 5/31/13       | Non-Reportable | The window in a BNL van was broken when the door was shut. There were no injuries and no other equipment was damaged. LPD responded to the notification. ( <a href="#">Event Link</a> )   |
| 5/29/13       | Non-Reportable | Approximately fifteen to twenty gallons of hydraulic fluid were released from a street sweeper on Upton Rd. between Princeton and Bell Ave., and onto Bell Ave., where the vehicle stopped. The spill was confined to the paved road surface. Speedy Dry was applied, and ESD was notified. The affected area has been cleaned. ( <a href="#">Event Link</a> )                                  |
| 5/29/13       | Non-Reportable | An inspector discovered a suspect shackle in the RF building at NSLS-II. The shackle was installed on a new jib crane, which had not been put into service. The shackle had no manufacturer's markings. The shackle was removed by the inspector. The crane was not approved for use. ( <a href="#">Event Link</a> )  |
| 5/20/13       | Non-Reportable | 'BNL required' paperwork was not completed prior to a lift of roofing material at Building 555. This was due to a communication breakdown between BNL & the contractor. This was discovered during post work close-out meetings and subsequently reported to the BNL ORPS categorizer. ( <a href="#">Event Link</a> )   |

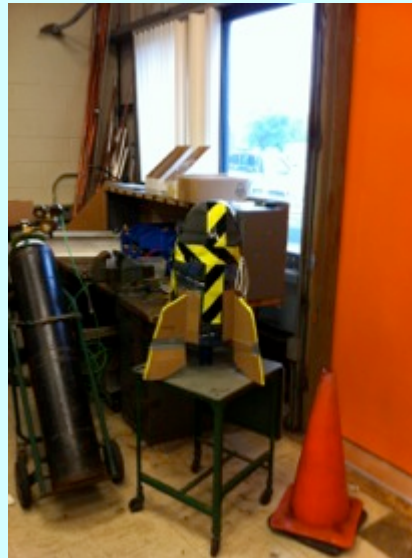


# Where To Find PHENIX Engineering Info



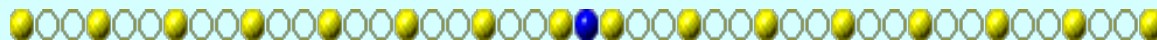
*Run 13 is over*

*Now the fun begins !*



[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)

6/13/2013



35